

Computer Networks assignment # 1

- 1- What is the propagation time if the distance between the two points is 12,000 km? Assume the propagation speed to be 2.4×10^8 m/s in cable.
- 2- What are the propagation delay and the transmission delay for a 2.5-kbyte message (e.g. e-mail) if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at 2.4×10^8 m/s.
- 3- What are the propagation delay and the transmission delay for a 5-Mbyte message (e.g. image) if the bandwidth of the network is 1 Mbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at 2.4×10^8 m/s.
- 4- A network with bandwidth of 10 Mbps can pass only an average of 12,000 packets per minute with each packet carrying an average of 10,000 bits. What is the throughput of this network?
- 5- Suppose there are two hosts A and B, and a file of 200 bytes needs to be sent from A to B. The link bandwidth is 500Kbps, the link is a fiber optic link, and the distance between A and B is 35km. How long will it take to send the file to B?

Note: — total time will be calculated from the time A starts sending the first bit until B receives the last bit.

Speed of light in fiber: $2 * 10^8$ meters per second



Best wishes
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